COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

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Investigation of the Department of)

Telecommunications and Energy into whether)

(1) metering, meter maintenance and testing,) D.T.E. 00-41

customer billing, and information services)

should be unbundled; and (2) the service territories)

of distribution companies should remain exclusive,)

as required by G.L. c. 164, §1B))

_____)

INITIAL COMMENTS OF

SITHE NEW ENGLAND HOLDINGS LLC

I. Overview

Sithe New England Holdings LLC ("Sithe") appreciates the opportunity to provide initial comments regarding whether metering, billing and information services ("MBIS") should be unbundled from other electricity services provided by distribution companies in Massachusetts.

In its Order opening an investigation in this docket, the Department of Telecommunications and Energy ("Department" or "DTE") noted that Section 312 of the Electric Restructuring Act requires the Department to determine (1) whether MBIS should be unbundled from other services and be competitively provided, and (2) whether such unbundling would result in substantive savings to consumers, and, if so, whether these savings could be realized with little, or no, disruptions to employee staffing levels of the distribution companies. *Order Opening Investigation* at 1. The DTE's Order also indicated that, if the Department finds that MBIS should be unbundled and provided

competitively, then the Restructuring Act requires the Department to file its recommendations and draft legislation with the Legislature by January 1, 2001. *Id.*[(1)]

The Department also has announced that its investigation of MBIS issues will be divided into two phases. In this first phase, the Department will address the important issue of whether MBIS should be unbundled and provided competitively, and will proceed to a second phase - where draft legislation would be developed - only if it determines in this phase that MBIS indeed should be unbundled and provided competitively. *Id*. at 2.

Sithe's comments will focus on the Department's Question 1:

What are the costs and benefits that competitive MBIS would provide to consumers of electricity, and to other entities that provide services in the electric industries? Benefits should include, but not be limited to, potential cost savings, the enhancement of available energy- and non-energy-related services, *and the extent to which the successful development of the competitive market for generation requires the introduction of competitive MBIS*. (*Id*. at 4, emphasis added)

In Sithe's view, the decision about whether to unbundle MBIS should be driven by the likely impact of competitive MBIS on the development of wholesale and retail power markets. While the Department must evaluate the impact of unbundling MBIS on other important factors (e.g., utility company staffs), Sithe believes that unbundled MBIS is in the public interest if it makes wholesale and retail generation markets more efficient.

Sithe's comments describe the essential role of enhanced metering (one of the components of MBIS) in the development of well-functioning power markets. It then assesses the arguments both for and against the competitive provisioning of MBIS, concluding that there is insufficient evidence to determine whether full MBIS competition is now in the public interest. Finally, we recommend that the Department implement pilot MBIS unbundling programs to provide real world experience.

II. The Role of Advanced MBIS in Competitive Retail and Wholesale Electricity Markets

To understand the role of MBIS in competitive electricity markets in Massachusetts, it is important to set the stage by describing the character of the region's electricity spot market, and then discuss the role of MBIS in the proper functioning of that market.

A. New England's Electricity Spot Markets

Figure 1 illustrates the well-known volatility of the New England spot market for electricity since its opening in the second quarter of 1999. The figure presents hourly energy prices as provided by the New England Independent System Operator (ISO-NE) from May 1, 1999--the first day of the spot market operation--through July 19, 2000.

Utility executives, ISO-NE officials and others have argued that price spikes (and the power shortages that cause them) are problematic and require remedial policies. To date, policymakers have emphasized three approaches to controlling price spikes: (1) public appeals for voluntary demand reduction; (2) capping energy prices; and (3) establishing a demand-responsive element in the spot market.

Faced with supply shortages and concerns about reliability, utilities, the ISO and even state government officials frequently appeal to customers to reduce their consumption. Such appeals are common in New England during the peak summer season, as part of "OP4" operating conditions. There is some evidence that customers are willing to respond to such appeals, but customers have very little incentive to seek out information about shortages or take extra steps to reduce consumption.[(2)] In addition, it is easy for some customers to "free ride" on the conservation efforts of other, more civic-minded citizens. In the end, public appeals and moral suasion are an insufficient means to allocate scarce supplies during shortages.

Concern about price spikes has led to proposals by some that spot market prices should be capped.[(3)] However, while price spikes (such as prices of $6,000/MWH for four hours on May 8, 2000) have received a great deal of public and regulatory attention, Figure 2 clearly shows that such events are extremely rare. Figure 2 presents a price duration curve for the ISO-NE energy market for the 10,704 hours of the market's operation as of July 19, 2000 (beginning May 1, 1999).

Further, high prices are driven by shortages and reflect the value of generation capacity when it is extremely scarce. Accordingly, the imposition of price caps could interfere with long-term investment decisions by both potential generators and consumers of electricity. The key to controlling such spikes is not in capping prices but in enabling the market itself to respond to spikes. As shown below, in well-functioning spot markets, price balances supply and demand.

Policymakers and market participants alike have endorsed the importance of introducing a demand-responsive element into *wholesale* energy spot markets in New England, most notably in the form of the recently FERC-approved proposal for a multi-settlement system ("MSS") in which both demand and supply bids will be used to clear the market. This MSS system is planned to be implemented in New England by February, 2001.[(4)] Demand-responsive bids have been seen as key to a properly functioning, efficient spot market for electricity.[(5)]

However, while wholesale market reforms (such as MSS) are essential, they will go only part way toward fostering the development of price-responsive demand in the *end-use* market. Price-responsiveness among end-users is also essential to well-functioning power markets.

For example, in comments to FERC (in the same docket that FERC issued its July 26, 2000 Order), NSTAR requested that FERC direct NEPOOL to investigate, design and implement mechanisms for enhancing demand-responsiveness within NEPOOL, since enhanced demand-responsiveness would provide relief during supply constrained periods. (July 26 2000 FERC Order, page 6.) In its response, FERC stated that

Demand is largely unresponsive to the hourly price in the ISO's markets.....The lack of demand responsiveness is due, at least in part, to factors that prevent retail customers from seeing the hourly spot market energy price, rather due to any inherent willingness of retail customers to buy electricity at any price. These factors include a lack of meters to measure the customer's energy consumption by hour, and retail rate designs that establish prices that are fixed over long periods. (July 26 2000 FERC Order, page 12.)

FERC added that the "net result of these conditions [including other factors mentioned by FERC] is that prices in New England are vulnerable to spikes during OP4 conditions." (*Id*., page 13.) In order to align changes in price-responsive demand mechanisms in retail markets with changes necessary in wholesale markets, additional work is needed by state commissions.[(6)]

B. Price-Responsive Demand Is Essential for Well-Functioning Spot Markets

Figure 3 presents a stylized supply curve for an electricity spot market. Up to some level of aggregate demand, the cost of supply is stable or rises at a steady rate. Beyond that point, it "spikes." (This stylized supply curve is roughly consistent with the price duration curve presented above in Figure 2.) The sharp upturn in supply price is driven by the fact that generation capacity becomes extremely valuable when it is in short supply. This capacity price is closely tied to the value of system reliability to end users.

Figure 3

Cost of Supply

Figure 4 illustrates a price spike that occurs when demand shifts out in response to very hot weather. Electricity markets are subject to price spikes for a number of reasons,

including such unavoidable facts as the high cost (or unavailability) of storage and the fixed nature of generation capacity in the short-term. However, another cause of spikes--lack of sufficient price-responsive demand--is a fundamental shortcoming in the current market structure. As portrayed in Figure 4, demand is inelastic because customers lack the incentive to reduce their consumption despite rapidly rising prices.

Figure 4

Shortage-Induced Price Spike

Figure 5 presents an alternative spot market outcome, where demand is somewhat elastic. While most customers in this scenario continue to have inelastic demand, it is assumed that demand has become slightly price-responsive, because some customers have been given the incentive and the opportunity to reduce their consumption as prices rise. As a result of this demand elasticity, prices rise but do not spike.

Figure 5

Price-Responsive Demand Mitigates Price Spike

In sum, to work well--i.e., to discipline markets so as to minimize spikes--power markets must rely on price-responsive supply *and* price-responsive demand to stay in balance. Analysts who have studied electricity demand have found that given the opportunity and the incentives, most customers will reduce their usage. However, the demand elasticity of most customers is at present "pent up" because of a combination of market rules--which the region is on the eve of addressing--and other factors such as a lack of adequate metering technology-- which still needs to be addressed. Federal and state policymakers must act to unleash this pent up price-responsiveness.

C. Enhanced Metering Is Essential for Price-Responsive Demand

Two main things are needed to develop price-responsive demand. First, customers must have the opportunity to be exposed to actual market prices. When the customer is paying fixed prices for energy, and when he sees a bill that does not tie usage at certain hours with electricity prices in the generation markets, his incentive to reduce consumption at peak is highly attenuated. For example, when the spot price of electricity is $6/kwh (based on $6,000/MWH) but the customer is paying a fixed price of $0.06/kwh, the opportunity cost of the power--the market value as revealed by the market price--is 100

times greater than the price the customer sees. As long as customers can rely on standard offer or default service at fixed prices that do not reflect actual market prices, they will be indifferent to wholesale market volatility.

Second, customers also need access to enhanced delivery services that enable them to know, understand and respond to real-time prices. Such services require equipment such as hourly meters and data communication devices. In its Order on Model Terms and Conditions for distribution companies, the Department concluded that

the installation of metering equipment capable of recording and transmitting hourly load data is an essential component of having customers enjoy the full benefits of a competitive generation market. Only with the installation of such equipment would customers have the necessary information and the proper incentives to adjust their consumption patterns based on price signals.(7)

In the absence of hourly meters, customer billing for energy consumed must rely on protocols for estimating consumption--"load profiling"--that take each retail customer's monthly meter readings and allocate them into consumption estimates for each hour in the previous month. Paul Joskow has compared the use of load profiling to

a supermarket charging for a cart of groceries based on the average cost per pound of groceries in a sample of shopping carts that passed through the cashier's desk rather than based on the individual items in the cart.(8)

Load profiling creates inequities when it is used to allocate spot market prices. The Massachusetts customer who agrees to turn off his or her air conditioner in response to public appeals when prices spike in New England will receive no benefit in his or her bill commensurate with the value of the *service* (i.e., supplying demand reduction kw and kwh) provided to the region's electricity market (in terms of both price and reliability benefits).

Load profiling also creates substantial inefficiencies. Under load profiling, the customer's incentive to reduce consumption during peaks is highly attenuated. For example, depending upon his service category and supplier, a particularly savvy customer may know that the profiling protocol could lead eventually to his being allocated a share of the peak price, whether or not he is consuming at peak. Since he will pay for it anyway, he may feel that fairness gives him a right to consume at peak. More likely, he will be completely unaware of the high price unless he happens to read about it in the newspaper several days later. He simply has no incentive to pay attention.

Load profiling can be replaced only if retailers begin offering time-sensitive services, such as real-time, time-of-use, and weekend/weekday pricing--all of which require enhanced metering capability. Then, price-responsive demand will be able to respond to shortage-induced price spikes. For example, imagine that when spot market prices begin to peak, instead of issuing a public plea that customers reduce their usage, the utility offers to *pay* consumers to curtail use. One expects that an offer to buy electricity from

end-use customers at $6/kwh (using the May 8, 2000 prices as an example) would be much more likely than other mechanisms (e.g., OP4 public appeals) to get the attention of customers and to provide customers with incentives to respond.

IV. Arguments for and against MBIS Unbundling

While there appears to be solid support for the notion that enhanced metering will allow for price-responsive demand, which in turn will enable power markets to work better, the core question is whether enhanced MBIS--and, more importantly--the time-sensitive services that require advanced MBIS will spread more rapidly if it is unbundled. That is, will it lead to lower MBIS costs and a superior set of MBIS services? Or, will competitive MBIS make customers worse off by raising costs without providing commensurate benefits?

A. Do Concerns about Reliability and Safety Justify Monopoly Provision of MBIS?

Opponents of MBIS unbundling ordinarily assert that concerns about reliability (e.g., accuracy of metering) and safety require that the various components of MBIS remain monopoly functions of the regulated distribution companies.

It is at least plausible, however, that model terms and conditions could be designed and implemented that would ensure that the meter and its installation, operation, and maintenance would be consistent with the public interest in safety and accuracy. Such terms and conditions are being implemented in other states (see Section III.E below).

Evidence derived from experience in competitive metering in the gas sector, where it has been common for several years, supports the view that clear and objective technical standards can be designed to address concerns about safety and accuracy. In addition, industries such as the financial services and commercial credit sectors have developed ways to provide for the accurate, rapid, and reliable recording and transmission of large amounts of commercially sensitive data. In sum, it does not seem likely that competitive MBIS would present electric distribution utilities or their customers with insurmountable technical problems in this regard.

B. Are the Components of MBIS "Natural Monopoly" Services?

It is also sometimes argued that the various components of MBIS exhibit natural monopoly characteristics, and that unbundling would lead to lost economies of scale, wasteful competition, and generally increased costs.

Economists and regulators have grown justifiably skeptical of natural monopoly arguments. Economies of scale are present in many products and services but few are true natural monopolies. There is no obvious economic reason why MBIS should be naturally monopolistic, and experience in other industries has shown this to be the case.

C. Is there Sufficient Demand to Support Competitive MBIS?

Another argument against competitive MBIS is that experiments in other jurisdictions have not revealed significant demand for competitively provided meters.

To date, demand for competitively provided metering is small. The standard offer and provider of last resort (i.e., default service) policies in some states continue to impede the development of the market for time-of-use service (and the resulting price-responsive demand). As long as most customers rely on standard offer service, which is typically based on fixed rates for electricity used over an entire month and priced at below-market rates, the potential market for advanced MBIS is very small. There will be no role for advanced MBIS until electricity customers face or even have the practical opportunity to face actual market prices. So long as standard offer and default service prices shield customers from the market, advanced MBIS has nothing to offer them.

This appears to be a classic "chicken and egg" problem. Until such time as there is a robust market for time-of-use electricity, there is arguably no need for customers to have time-of-use meters. As long as customers do not have time-of-use meters, there can be no time-of-use market for electricity.

Still, it is reasonable to look ahead to how the market will work once the "transition" period is over, including a time when there are more market-based prices for standard offer and default service and more mechanisms to provide customers with the information they need to change their demand in response to price. Price-responsiveness can exist only if end-use customers have the incentive and opportunity to adjust their demand in response to price changes in the market.

D. Can Unbundled Tariffs for Monopoly MBIS Adequately Promote Enhanced Services?

It is also possible that unbundling is not required for the proliferation of enhanced MBIS. The DTE's generic terms and conditions for delivery service already require the distributor to install enhanced metering facilities at the request of a customer or the customer's supplier.[(9)] It is sometimes argued that such rules are sufficient to ensure that customers who will benefit from enhanced MBIS will receive those services.

Nonetheless, it seems desirable to allow the market--e.g., customers and competitive suppliers--to be the drivers on MBIS services and it seems doubtful that relying on tariffs is the optimal means to ensure the market has an adequate role. Retailers, on the one hand, have strong incentives to promote the implementation of enhanced metering services, because they rely on these services in order to be able to offer time-sensitive services such as time-of-use prices. Distribution companies, on the other hand, have far diminished incentives to offer such services. While utilities may be mandated to install advanced meters at the request of customers or marketers, this reactive approach is not likely to kick-start the market for such services, as compared to the actions of a profit-oriented competitive supplier responding to market incentives. Such a view is consistent with the Department's finding (in its Order on Model Terms and Conditions for distribution companies) that

Allowing customers and their competitive suppliers to own meters should result in quicker advances in metering technology. In turn, advances in metering should cause a reduction in electricity prices and access to new products and services.[(10)]

E. Experience in other Jurisdictions

Other states in the "first tier" of electricity industry restructuring can provide useful experience with the unbundling of MBIS. As shown in Table 1, each of these states has implemented unbundling of some component of MBIS.

Table 1

States Reviewed for Competitive MBIS Services

State	Order	Date
California	No. 97-05-039	May 6, 1997
Illinois	Interim Order, Docket 99-0013	April 12, 1999
New York	Case 94-E-0952	June 16, 1999
Pennsylvania	Restructuring settlements	Various

1. California

Finding that "competitive provision of metering services furthers [the goal of bringing the benefits of hourly-pricing of electricity to as many customers as possible] by allowing the market to respond to customers' desires to tap the benefits of real-time pricing," the California Public Uutilities Commission (CPUC) ordered the state's three largest utilities to unbundle metering, billing and other customer information services.[(11)] The CPUC ordered the utilities to provide for competitive provision of these services to customers with demands of 20 kW or more on January 1, 1998 and to all other customers by January 1,1999.

According to the CPUC, many companies have received certification to provide competitive metering services. However, while the CPUC has not collected data on the numbers of competitive metering installations, CPUC Staff believes there have been few such installations, primarily because relatively few customers have begun buying retail electricity from competitive suppliers.[(12)]

2. Illinois

The Illinois Commerce Commission ("ICC") ordered utilities to unbundle metering and billing services so as to provide for competitive third party provision of those services.[(13)] The ICC based its order on several findings:

- "there is no evidence in the record that the unbundling of metering and billing will negatively impact electric utility employees;"

- "the unbundling of metering and billing will promote the development of competitive markets for electric energy in Illinois;"

- "the evidence indicates that there is customer interest in unbundling metering and billing;"

- competitive metering and billing "could result in innovation and greater efficiency;" and

• "unbundling these services allows customer choice for additional services besides generation services."

The ICC Interim Order called for competitive metering and billing to begin by September 1, 2000.

8. New York

Finding that the "introduction of competition into metering services can lower long term costs, increase customer choices, encourage economic growth, stimulate innovation, and shift more of the risks of investments to providers," New York ordered competitive metering for customers with demands above 50 kW, to begin November 1999.[(14)] The New York PSC concluded that

competitive metering offers benefits, but extending it to all customers now is not warranted. We will make it available on a limited basis, i.e., only to customers with demand equal to or larger than 50 kW. This provides competitive metering to approximately the 40,000 largest customers that would most benefit in the short-term from advanced metering services. This will provide real-world experience with competitive metering with a limited size, but technically sophisticated customer pool, and will help us to identify and resolve potential problems before expanding competitive metering to all customers.[(15)]

9. Pennsylvania

Pennsylvania may be the most interesting state to watch as it is conducting a natural experiment in the costs and benefits of competitive metering. The unbundling of metering was negotiated in each utility's restructuring settlement, with the result that four of the state's utilities are in the process of implementing frameworks to allow competitive metering, while metering remains a monopoly function of the other utilities. All utilities--including those with competitive metering rules--continue to provide tariffed advanced metering services to customers who request them.

The Pennsylvania PUC Metering Working Group released a preliminary report on June 30, 2000 tabulating activity in metering by service territory of the Electric Distribution Companies ("EDC").

Table 2

Competitive MBIS in Pennsylvania

Electric Distribution Company	Competitive Metering Allowed?	Year-to-Date Totals of Advanced Meter Installations by EDC at Customer Request
Allegheny Power	Yes	0
Citizens' Electric	No	0
Duquesne Light	No	0
GPU	Yes	40
PECO	Yes	0
PPL	Yes	48
PennPower	No	0
UGI	No	0
Wellsboro	No	0
Total		88

To date, there are no certified providers of competitive meters in Pennsylvania. However, the data show that so far this year there have been 88 advanced metering installations by EDCs in whose service territories metering has been made competitive, contrasting with no such installations in the territories of EDCs where metering has not been allowed.

While it is premature to draw strong conclusions from Pennsylvania's brief experience with competitive metering, it seems possible that the prospect of competitive meter suppliers has given some EDCs strong incentives to aggressively promote the installation of advanced meters.

X. Pilot Unbundling Programs Would Be in the Public Interest

At this point virtually all of the arguments on the costs and benefits of competitive MBIS are theoretical. As described above, other states are only beginning to implement frameworks for unbundled metering and other components of MBIS. Nevertheless, Sithe believes there is good reason to believe that competitive MBIS would be in the public interest. In any case, the arguments for and against unbundling can only be answered empirically.

Sithe in Massachusetts recommends that the Department consider requiring a pilot program for unbundling MBIS in Massachusetts. Properly designed, implemented and monitored, such pilots would give the Department, utilities, competitive suppliers, and

customers the information they need to determine whether the benefits of competitive MBIS outweigh its costs. Pilots could answer the following questions:

- Are customers more likely to receive enhanced metering capabilities when MBIS is unbundled?

- Is it possible to achieve efficient data transfer between marketers and distributors when the distributors do not own the meters?

- Are marketers more likely to offer time-of-use or interruptible service when MBIS is competitive?

- Does competitive MBIS create unanticipated problems, reliability risks, customer confusion, etc?

If pilots are targeted at large customers--i.e., those with demand above a relatively high threshold--then they need not interfere with any utility plans to implement automatic meter reading.[(16)]

Pilots can also ensure that the Massachusetts's electricity hardware and software infrastructure develops in a way that is consistent with the eventual unbundling of MBIS, even if the Department concludes that such unbundling is not now in the public interest.

At the same time, the Department should monitor the experience in those other states that have unbundled components of MBIS.

XV. Conclusion

In sum, the potential benefits of competitive MBIS are substantial and include the possibility of expedited implementation of enhanced metering, the proliferation of time-sensitive services offerings by competitive retailers, and the fostering of innovation in metering and data communication technologies. Recognition of these benefits has led the utility commissions in California, Illinois, Pennsylvania, and New York to require the unbundling of metering and other components of MBIS.

At the same time, the risks of unbundling--including lost economies of scale, increased customer confusion, compromise of safety and accuracy standards--can not be entirely dismissed without better empirical information that can only be provided by further experience. Regulators, utilities, and customers in other states are just beginning to gather data on the effects of unbundling.

Therefore, while the potential benefits of competitive MBIS are significant, but there is currently only limited information available as to whether unbundling would result in

substantial savings to consumers, Sithe recommends that the Department find that MBIS should be unbundled in a limited manner through the establishment of competitive MBIS pilot programs. Sithe further recommends that in the second phase of this proceeding the Department should develop draft legislation that establishes such competitive MBIS pilot programs.[(17)]

Dated August 1, 2000

1.

[1]While the Department in this proceeding is also required to investigate whether distribution company service territories should remain exclusive, Sithe takes no position with respect to these issues.

2.

[2] See, for example, "Survey Shows Many Consumers Willing to Conserve Electricity During Heat Waves," Edison Electric Institute, July 21, 2000 (http://www.eei.org/issues/news/releases/).

3.

[3] Indeed, the Federal Energy Regulatory Commission has just approved, on a temporary basis, a bid cap of $1,000/MWH in the New England energy market. See FERC, *Order on Complaint and Conditionally Accepting Market Rule Revisions*, Docket Nos. ER00-2811-000, ER00-2811-001, ER00-2937-000, EL00-62-000 and ER00-2052-000, *slip op*, dated July 26, 2000. ("FERC July 26, 2000 Order").

4.

[4] *Order Conditionally Accepting Congestion Management and Multi-Settlement Systems*, 91FERC¶61,311, June 28, 2000.

5.

[5] In the FERC July 26, 2000 Order, in which FERC allowed temporary bid caps in New England's energy market, the FERC stated: "lack of price-responsive demand is a major impediment of the competitiveness of electricity markets. In the CMS/MSS order, 91 FERC ¶61,311, slip op. at 15, we encouraged the ISO and NEPOOL market participants to work in conjunction with state commissions to enhance the demand-side responsiveness in the market. In this order, we include deadlines. We will require the ISO to work with these entities to develop options for increasing price responsive demand in addition to its load response program and future demand-side bidding, and to file a report discussing opportunities for and barriers to implementation by February 28, 2001. Specific options that can be formulated and/or implemented earlier should be filed in advance of this date; all feasible options should be filed no later than April 1, 2001. We will also require the ISO to publish in its public 'Monthly Market Report' details of new demand-side programs in New England and aggregate measures of demand-side response capability by type. Should we find the progress on this initiative to be lacking, we will consider whether other procedures are necessary." FERC July 26, 2000 Order, at 16-17.

6.

[6] "Based on our experience over the past few years, it is becoming evident that a successful transition to competitive electricity markets will necessarily involve an increased participation of the demand side of the market in making resource decisions. Such participation can serve to discipline prices by bringing supply and demand into balance and thereby reduce calls for intervention in markets through price caps…We

encourage programs to provide customers improved price signals… We recognize that increased demand side participation will depend in large part on action by the state commissions." *Order Conditionally Accepting Congestion Management and Multi-Settlement Systems*, 91FERC¶61,311, June 28, 2000, at 15.

7.

[7] D.P.U./D.T.E. 97-65, December 31, 1997, p. 58.

8.

[8] Paul Joskow, "Why Do We Need Electricity Retailers? Or Can you Get It Cheaper Wholesale?" Revised Discussion Draft, February 13, 2000, p. 17 (http://web.mit.edu/pjoskow/www/papers.html).

9.

[9] D.P.U./D.T.E. 97-65, December 31, 1997, p. 59.

10.

[10] D.P.U./D.T.E. 97-65, December 31, 1997, p. 58.

11.

[11] *Opinion on the Unbundling of Revenue Cycle Services*, Decision 97-05-039, California Public Utilities Commission, May 6, 1997, p. 1 (http://nic.cpuc.ca.gov/electric_restructuring/d9705039.htm).

12.

[12] Telephone conversation with Steve Roscow of CPUC Energy Division, July 24, 2000.

13.

[13] *Interim Order*, Illinois Commerce Commission, 99-0013 Investigation Concerning the Unbundling of Delivery Services under Section 16-108 of the Public Utilities Act, April 12, 1999 (http://www.icc.state.il.us/icc/ec/dst.asp).

14.

[14] *Order Providing for Competitive Metering*, State of New York Public Service Commission, Case 94-E-0952, June 16, 1999, p. 7 (http://www.dps.state.ny.us/fileroom/doc5982.pdf).

15.

[15] *Id*. at 37.

16.

[16] Pilots will also allow the Department and the legislature to monitor the labor impacts of MBIS unbundling.

17.

[17] **The process of developing draft legislation relative to competitive MBIS pilot programs could include, at a minimum, the consideration of issues such as the number of distribution companies involved, the number and type of customers targeted, the duration of such programs, the implications of such programs for distribution company labor forces, and recordkeeping and reporting requirements.**